

## REMARKS

An Interview was conducted on April 8, 2009, where it was submitted that the claimed invention is unobvious because Boudreau *et al.* teaches away from the claimed invention. Applicant's representative would like to thank the Examiner for his time and consideration in conducting the Interview.

Claims 1 and 3-5 are presented for examination, Claims 1 and 3-5 are currently amended. Claims 2 and 6-11 are canceled. Claims 1 and 3-5 are amended to clarify the preamble and the range for the ratio  $a/b$ . The term "recovering" is supported by the specification at page 1, line 9. The lower range for the ratio  $a/b$  is supported by Claim 1 as originally filed. The upper range is supported by Example 1 in the specification. Example 1 indicates that when  $a$  is 0.2mM, particles are completely transferred, and the dispersion becomes transparent when  $b$  is more than 0.2mL. For this Example, where  $b > 0.2\text{mL}$ ,  $a/b$  is less than 1.0mM/mL.

The specification has been amended in Example 1 to correct typographical errors. Support for this amendment is found in the remainder of the explanatory text of Example 1. Example 1 describes results of the dispersion where  $a = 0.2\text{mM}$  of various size of polydiacetylene fine particles. Example 1 teaches that phase separation occurs when the amount of ionic liquid  $b$  ranges from 0.1mL to 0.2mL. Calculations show the recited ratio  $a/b$  of "0.5 to 1.0" is incorrect where phase separation occurs. Instead, the range should be  $2.0 \geq a/b \geq 1.0$  ( $a/b = 0.2\text{mM}/0.1\text{mL}$  and  $a/b = 0.2\text{mM}/0.2\text{mL}$ ). As explained above, Example 1 states that when "more than 0.2mL" is added, the color of original dispersion becomes transparent, but then the Example incorrectly indicates that this corresponds to " $a/b = 1$ ." Where  $b > 0.2\text{mL}$ ,  $a/b < 1$ , because  $a$  remains constant

at 0.2mM for this Example. Hence, the assertion in applicant's remarks of March 10, 2009, that where  $a/b$  is 0.5-1.0, phase separation does not occur, is requested withdrawn as being incorrect. No new matter is contained by the amendment and entry is respectfully requested.

Obviousness rejection under § 103(a)

The Office Action rejected Claims 1 and 3-5 as being unpatentable over WO 02/34863 ("Boudreau *et al.*"). Although the Office Action acknowledged that the reference fails to teach the claimed "ratio  $a/b$ " (mM/mL) to be 0.05, it was alleged that the ratio  $a/b$  is the "ionic liquid absorption efficiency indicator" such that "the higher the number, the better the ionic liquid performs, i.e. less amount to remove or extract the particles in the dispersion." While a large value for  $a/b$  would mean that the amount of the ionic liquid  $b$  is relatively small, as a mathematical necessity, the Office Action's general characterization is unfounded. The present application teaches recovering fine particles from a dispersion having fine particles dispersed in an aqueous medium by adding an ionic liquid. Where  $a/b$  is in the claimed range of  $0.05 \leq a/b < 1.0$ , the fine particles are transferred to the ionic phase, such that the aqueous dispersion becomes transparent and the particles are completely recoverable in the ionic liquid. Where  $a/b \geq 1.0$ , phase separation is either incomplete such that there is no recovery of the fine particles, or phase separation does not occur at all.

The Examples also show that the  $a/b$  ratio range is not an indicator of absorption efficiency for a given particle and ionic liquid pair as alleged by the Office Action. See specification Examples 4-5. The Office Action's characterization of the nature of the ratio  $a/b$  is an oversimplification and an inaccurate *ex post facto* observation. The claimed range would not

have been discoverable through routine experimentation in light of Boudreau *et al.* Similarly, it would not have been “obvious to try” to make the claimed ratio a/b with a reasonable expectation of success. See In re Zurko, 258 F.3d 1379, 59 U.S.P.Q.2d 1693 (Fed. Cir. 2001) (holding an assertion of common knowledge cannot be relied upon to overcome deficiencies in the prior art without evidentiary support).

Conclusion

In light of the foregoing, it is submitted that the application is now in condition for allowance. It is therefore respectfully requested that the rejections be withdrawn and the application passed to issue.

Respectfully submitted,  
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